

PRINCIPAL FACTS FOR GRAVITY STATIONS IN
THE NEEDLES AREA, SAN BERNARDINO COUNTY, CALIFORNIA,
MOHAVE COUNTY, ARIZONA, AND CLARK COUNTY, NEVADA

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DENVER, COLORADO

ABBREVIATIONS OF THE HEADINGS OF THE ACCOMPANYING TABLES OF PRINCIPAL FACTS
ARE EXPLAINED IN THE FOLLOWING LIST:

GROUND WATER GEOP.	PROJECT DESIGNATION
NEEDLES CALIF.	PROJECT AREA
010968	MONTH, DAY, AND YEAR
	THE PROJECT STARTED
BM W753 NEEDLES AP	GRAVITY BASE STATION
	LOCATED AT EDGE OF ROAD LEADING TO
	NEEDLES MUNICIPAL AIRPORT, ON U.S.C. AND
	G.S. BENCHMARK DESIGNATED W753 1945. OBSERVED
	GRAVITY IS 979616.04 MILLIGALS. THIS BASE
	STATION IS TIED TO AIRPORT BASE STATION WA 128
	AT LAS VEGAS, NEVADA (BEHRENDT AND WOOLLARD,
	1961). THIS BASE STATION IS ALSO GRAVITY
	STATION NUMBER 1 IN THE TABLES.
MABEY	PROJECT CHIEF
IDREF = 232	COMPUTER IDENTIFICATION NUMBER
STATION	STATION NUMBER
LAT	NORTH LATITUDE IN DEGREES, MINUTES, AND
	HUNDREDTHS OF MINUTES

LONG	WEST LONGITUDE IN DEGREES, MINUTES, AND HUNDREDTHS OF MINUTES
ELEV (F)	ELEVATION IN FEET
E	ELEVATION ACCURACY-NOT RECORDED
OBS G	OBSERVED GRAVITY IN MILLIGALS
FAA	FREE AIR ANOMALY IN MILLIGALS
BA 2.67	SIMPLE BOUGUER ANOMALY IN MILLIGALS FOR ASSUMED DENSITY OF 2.67 G PER CC
BA (OPT)	SIMPLE BOUGUER ANOMALY IN MILLIGALS FOR ASSUMED DENSITY OF 2.45 G PER CC
CB 2.67	COMPLETE BOUGUER ANOMALY IN MILLIGALS FOR ASSUMED DENSITY OF 2.67 G PER CC
CB (OPT)	COMPLETE BOUGUER ANOMALY IN MILLIGALS FOR ASSUMED DENSITY OF 2.45 G PER CC
CC	CURVATURE CORRECTION IN MILLIGALS
TC	TERRAIN CORRECTION IN MILLIGALS. TERRAIN CORRECTIONS WERE MADE FOR 66 SELECTED STATIONS FROM LOCUS D THROUGH K USING HAYFORD - BOWIE TEMPLATES (SWICK, 1942). CORRECTIONS FOR THE REMAINING STATIONS WERE INTERPOLATED.

THE GRAVITY STATION LISTED IN THE TABLES HAVING STATION NUMBER AS
"NEEDLES" IS BASE STATION NUMBER 287 OF THE CALIFORNIA DIVISION OF
MINES AND GEOLOGY (CHAPMAN, 1966).

GRAVITY MEASUREMENTS WERE MADE WITH LA COSTE AND ROMBERG MODEL G GEODETIC
GRAVITY METER NUMBER 62 WITH A READING ACCURACY OF ABOUT ± 0.01 MILLIGAL.

REFERENCES

- BEHRENDT, J. C., AND WOOLLARD, G. P., 1961, AN EVALUATION OF THE GRAVITY CONTROL
NETWORK IN NORTH AMERICA: GEOPHYSICS, V. 26, NO. 1, P. 57-76.
- CHAPMAN, R. H., 1966, GRAVITY BASE STATION NETWORK: CALIF. DIV. OF
MINES AND GEOL. SPEC. REPT. 90, P. 27.
- SWICK, C. H., 1942, PENDULUM GRAVITY MEASUREMENTS AND ISOSTATIC REDUCTIONS:
U. S. COAST AND GEOD. SURVEY SPEC. PUB. 232, 82P.

GROUND WATER GROP NEEDLES CALIF 010968 RM W753 NEEDL AP MAREY IDREF= 232

STATION	LAT	LONG	ELEV(F)	E	OFS	G	FAA	HA2.67	BA(OPT)	CH2.67	CH(OPT)	CC	TC
1	34 46.19	114 36.82	855.0	0	1616.04		-29.61	-58.77	-56.37	-59.09	-56.66	0.32	0.0
2	34 45.81	114 37.15	914.0	0	1613.66		-25.91	-57.08	-54.51	-57.42	-54.83	0.34	0.0
3	34 46.18	114 35.69	733.0	0	1622.93		-34.18	-59.18	-57.12	-59.46	-57.37	0.27	0.0
4	34 45.51	114 35.78	767.0	0	1621.09		-31.88	-58.04	-55.89	-58.33	-56.15	0.29	0.0
5	34 44.43	114 36.04	906.0	0	1621.08		-17.30	-48.20	-45.65	-48.54	-45.96	0.34	0.0
6	34 42.38	114 36.74	1215.0	0	1610.61		4.18	-37.26	-33.85	-37.71	-34.26	0.45	0.0
7	34 43.19	114 36.51	1095.0	0	1617.07		-1.79	-39.14	-36.06	-39.54	-36.43	0.41	0.0
8	34 40.91	114 36.98	1455.0	0	1595.24		13.45	-36.18	-32.09	-36.35	-32.24	0.54	0.37
9	34 39.82	114 37.61	1661.0	0	1574.80		13.91	-42.74	-38.07	-43.35	-38.63	0.61	0.0
10	34 38.20	114 38.08	1933.0	0	1548.47		15.44	-50.49	-45.06	-51.19	-45.70	0.70	0.0
11	34 46.62	114 35.91	738.0	0	1621.47		-35.79	-60.96	-58.89	-61.24	-59.14	0.28	0.0
12	34 48.40	114 36.18	708.0	0	1617.41		-45.18	-69.33	-67.34	-69.59	-67.58	0.26	0.0
13	34 51.28	114 37.51	500.0	0	1622.06		-64.15	-81.20	-79.80	-81.39	-79.97	0.19	0.0
14	34 45.50	114 34.32	642.0	0	1631.00		-33.72	-55.61	-53.81	-55.85	-54.03	0.24	0.0
15	34 44.09	114 33.30	708.0	0	1630.06		-26.46	-50.61	-48.62	-50.88	-48.87	0.26	0.0
16	34 43.09	114 32.82	808.0	0	1623.42		-22.29	-49.85	-47.58	-50.15	-47.86	0.30	0.0
17	34 41.98	114 33.80	1009.0	0	1616.28		-8.96	-43.38	-40.54	-43.75	-40.89	0.38	0.0
18	34 41.57	114 35.33	1179.0	0	1609.39		0.71	-39.50	-36.19	-39.70	-36.37	0.44	0.24
19	34 42.48	114 31.78	830.0	0	1620.07		-22.71	-51.02	-48.69	-50.62	-48.32	0.31	0.71
20	34 43.71	114 26.22	728.0	0	1613.51		-40.60	-65.43	-63.38	-65.70	-63.63	0.27	0.0
21	34 42.17	114 25.62	974.0	0	1606.14		-22.66	-55.88	-53.15	-56.25	-53.48	0.36	0.0
22	34 41.49	114 26.27	788.0	0	1619.77		-25.57	-52.45	-50.23	-52.68	-50.45	0.29	0.06
23	34 41.26	114 26.90	616.0	0	1630.93		-30.27	-51.28	-49.55	-51.12	-49.40	0.23	0.39
24	34 40.49	114 26.31	1077.0	0	1597.96		-18.79	-55.53	-52.50	-55.28	-52.27	0.40	0.65
25	34 43.66	114 24.18	725.0	0	1610.68		-43.64	-68.37	-66.33	-68.64	-66.58	0.27	0.0
26	34 43.62	114 23.09	787.0	0	1604.64		-43.79	-70.63	-68.42	-70.93	-68.69	0.29	0.0
27	34 42.75	114 22.80	998.0	0	1596.83		-30.53	-64.57	-61.77	-64.94	-62.11	0.37	0.0
28	34 41.90	114 22.49	1168.0	0	1586.87		-23.31	-63.14	-59.86	-63.58	-60.26	0.43	0.0
29	34 40.60	114 22.10	1416.0	0	1570.08		-14.94	-63.24	-59.26	-63.76	-59.74	0.52	0.0
30	34 39.70	114 22.98	1440.0	0	1568.57		-12.93	-62.05	-58.00	-62.15	-58.09	0.53	0.43
31	34 38.00	114 22.78	1006.0	0	1589.00		-30.93	-65.25	-62.42	-65.62	-62.76	0.37	0.0
32	34 38.61	114 20.33	1455.0	0	1564.46		-14.10	-63.73	-59.64	-64.26	-60.13	0.54	0.0
33	34 37.41	114 20.42	1179.0	0	1581.01		-21.82	-62.03	-58.72	-62.47	-59.12	0.44	0.0
34	34 36.23	114 21.53	950.0	0	1594.37		-28.34	-60.74	-58.08	-61.10	-58.40	0.35	0.0
35	34 35.21	114 22.09	779.0	0	1595.60		-41.77	-68.33	-66.15	-68.63	-66.41	0.29	0.0
36	34 33.94	114 23.56	453.0	0	1604.99		-61.26	-76.71	-75.43	-76.88	-75.59	0.17	0.0
37	34 30.80	114 21.90	458.0	0	1601.20		-60.17	-75.79	-74.50	-75.96	-74.66	0.17	0.0
38	34 38.90	114 19.52	1429.0	0	1566.63		-14.78	-63.52	-59.51	-64.05	-59.99	0.53	0.0
39	34 39.86	114 19.28	1379.0	0	1562.84		-24.62	-71.66	-67.78	-72.17	-68.25	0.51	0.0
40	34 40.57	114 19.11	1309.0	0	1563.31		-31.74	-76.38	-72.70	-76.87	-73.15	0.48	0.0
41	34 42.20	114 18.70	1154.0	0	1579.53		-32.39	-71.74	-68.50	-72.17	-68.90	0.43	0.0
42	34 40.60	114 17.88	1323.0	0	1560.38		-33.39	-78.51	-74.80	-79.00	-75.25	0.49	0.0
43	34 38.83	114 16.60	1589.0	0	1552.27		-14.00	-68.19	-63.73	-68.78	-64.26	0.58	0.0
44	34 37.90	114 15.30	1901.0	0	1537.24		1.62	-63.21	-57.87	-63.48	-58.11	0.69	0.43
45	34 43.72	114 18.77	969.0	0	1584.54		-46.92	-79.96	-77.24	-80.33	-77.57	0.36	0.0
46	34 43.71	114 20.19	914.0	0	1590.65		-45.96	-77.14	-74.57	-77.48	-74.88	0.36	0.0
47	34 43.72	114 17.77	1027.0	0	1576.90		-49.10	-84.13	-81.24	-84.51	-81.59	0.38	0.0
48	34 43.88	114 16.70	1112.0	0	1569.90		-48.33	-86.26	-83.13	-86.67	-83.51	0.41	0.0

49	34	43.71	114	21.24	830.0	0	1598.52	-45.99	-74.30	-71.97	-74.61	-72.25	0.31	0.0
50	34	43.05	114	28.85	492.0	0	1637.87	-37.51	-54.29	-52.91	-54.47	-53.07	0.14	0.0
51	34	53.25	114	43.80	1060.0	0	1605.39	-30.93	-67.08	-64.10	-67.47	-64.46	0.32	0.0
52	34	53.30	114	42.97	997.0	0	1606.01	-36.30	-70.31	-67.50	-70.68	-67.84	0.37	0.0
53	34	53.50	114	42.13	968.0	0	1603.94	-41.38	-74.40	-71.68	-74.76	-72.01	0.35	0.0
54	34	53.36	114	41.63	930.0	0	1604.66	-44.04	-75.76	-73.14	-76.03	-73.40	0.35	0.07
55	34	52.71	114	40.98	855.0	0	1608.50	-46.34	-75.50	-73.09	-75.82	-73.39	0.32	0.0
56	34	52.05	114	40.28	775.0	0	1614.63	-46.80	-73.23	-71.05	-73.52	-71.32	0.29	0.0
57	34	51.78	114	39.79	739.0	0	1616.08	-48.36	-73.56	-71.48	-73.84	-71.74	0.28	0.0
58	34	51.39	114	39.12	659.0	0	1619.85	-51.56	-74.04	-72.19	-74.28	-72.41	0.25	0.0
59	34	49.91	114	35.55	477.0	0	1621.48	-64.97	-81.23	-79.89	-81.41	-80.06	0.15	0.0
60	34	48.31	114	34.69	509.0	0	1627.60	-53.58	-70.94	-69.51	-71.13	-69.69	0.19	0.0
61	34	47.37	114	34.20	466.0	0	1633.66	-50.24	-66.14	-64.83	-66.31	-64.99	0.17	0.0
62	34	46.67	114	33.86	473.0	0	1635.89	-46.37	-62.50	-61.17	-62.68	-61.34	0.18	0.0
63	34	53.39	114	45.16	1151.0	0	1602.96	-24.99	-64.25	-61.02	-64.60	-61.34	0.43	0.08
64	34	54.04	114	45.98	1233.0	0	1594.71	-26.45	-68.50	-65.04	-68.87	-65.37	0.46	0.09
65	34	54.98	114	46.13	1302.0	0	1589.58	-26.41	-70.82	-67.16	-71.30	-67.60	0.48	0.0
66	34	55.60	114	46.65	1381.0	0	1582.11	-27.33	-74.43	-70.55	-74.94	-71.02	0.51	0.0
67	34	56.33	114	47.47	1449.0	0	1575.78	-28.29	-77.71	-73.64	-78.25	-74.13	0.54	0.0
68	34	56.60	114	49.43	1653.0	0	1564.01	-21.26	-77.64	-72.99	-78.24	-73.55	0.61	0.0
69	34	57.82	114	49.83	1745.0	0	1559.19	-19.15	-78.66	-73.76	-79.30	-74.35	0.64	0.0
70	35	1.28	114	49.82	1835.0	0	1552.28	-22.48	-85.06	-79.91	-85.73	-80.52	0.67	0.0
71	35	5.52	114	46.29	2671.0	0	1510.30	8.17	-82.93	-75.42	-83.38	-75.84	0.95	0.50
72	35	5.30	114	43.45	1759.0	0	1572.58	-15.00	-75.00	-70.05	-75.01	-70.07	0.64	0.63
73	35	6.54	114	44.60	2281.0	0	1537.37	-2.88	-80.67	-74.26	-81.16	-74.71	0.82	0.34
74	35	5.67	114	42.78	1682.0	0	1575.97	-19.38	-76.75	-72.02	-76.67	-71.95	0.62	0.69
75	35	6.40	114	41.08	1406.0	0	1594.29	-28.05	-76.00	-72.05	-75.75	-71.82	0.52	0.77
76	35	5.72	114	41.30	1349.0	0	1596.22	-30.52	-76.53	-72.74	-76.36	-72.58	0.50	0.67
77	35	4.01	114	41.18	1017.0	0	1615.48	-40.07	-74.75	-71.89	-75.13	-72.24	0.34	0.0
78	35	2.86	114	41.35	954.0	0	1620.69	-39.16	-71.69	-69.01	-71.52	-68.85	0.36	0.53
79	35	1.59	114	39.77	535.0	0	1636.05	-61.41	-79.66	-78.16	-79.47	-77.98	0.20	0.39
80	35	0.71	114	39.63	505.0	0	1631.92	-67.12	-84.35	-82.93	-84.54	-83.10	0.19	0.0
81	34	58.66	114	40.30	527.0	0	1624.46	-69.62	-87.59	-86.11	-87.79	-86.29	0.20	0.0
82	34	57.08	114	40.56	518.0	0	1620.71	-71.99	-89.65	-88.20	-89.85	-88.38	0.19	0.0
83	34	56.00	114	39.35	546.0	0	1610.91	-77.63	-96.25	-94.72	-96.46	-94.91	0.20	0.0
84	34	48.48	114	39.52	995.0	0	1607.68	-28.03	-61.96	-59.17	-62.33	-59.51	0.37	0.0
85	34	49.42	114	38.70	792.0	0	1616.65	-39.48	-66.49	-64.26	-66.78	-64.53	0.30	0.0
86	34	50.02	114	38.09	597.0	0	1620.16	-55.15	-75.52	-73.84	-75.74	-74.04	0.22	0.0
87	34	47.50	114	40.70	1156.0	0	1597.95	-21.24	-60.66	-57.42	-60.98	-57.71	0.43	0.11
88	34	47.02	114	42.10	1393.0	0	1587.47	-8.75	-56.26	-52.35	-56.37	-52.44	0.52	0.41
89	34	46.90	114	43.40	1555.0	0	1575.24	-5.57	-58.61	-54.24	-57.98	-53.66	0.57	1.20
90	34	54.40	114	38.48	557.0	0	1608.43	-76.82	-95.81	-94.25	-96.02	-94.44	0.21	0.0
91	34	52.87	114	38.61	532.0	0	1616.81	-68.63	-86.78	-85.28	-86.98	-85.47	0.20	0.0
92	34	57.17	114	39.13	461.0	0	1616.62	-81.57	-97.29	-95.99	-97.46	-96.15	0.17	0.0
93	34	57.16	114	37.99	470.0	0	1614.56	-82.76	-98.79	-97.47	-98.97	-97.64	0.18	0.0
94	34	58.10	114	38.12	470.0	0	1618.21	-80.44	-96.47	-95.15	-96.65	-95.31	0.18	0.0
95	34	58.98	114	37.80	475.0	0	1621.04	-78.38	-94.58	-93.25	-94.76	-93.41	0.18	0.0
96	34	59.89	114	37.89	464.0	0	1622.86	-78.41	-94.41	-93.09	-94.58	-93.25	0.18	0.0
97	35	0.69	114	38.20	473.0	0	1625.41	-76.61	-92.75	-91.42	-92.92	-91.58	0.18	0.0
98	35	4.35	114	39.58	676.0	0	1630.38	-57.72	-80.77	-78.88	-80.61	-78.72	0.25	0.42
99	35	4.79	114	38.50	525.0	0	1635.69	-67.23	-85.14	-83.67	-85.34	-83.85	0.20	0.0
100	35	3.08	114	38.61	494.0	0	1636.81	-66.61	-83.46	-82.07	-83.65	-82.24	0.19	0.0
101	34	46.80	114	28.60	689.0	0	1606.29	-55.83	-79.33	-77.40	-79.59	-77.63	0.25	0.0

102	34	48.00	114	28.10	687.0	0	1603.24	-60.76	-84.19	-82.26	-84.45	-82.50	0.26	0.0
103	34	49.80	114	27.90	804.0	0	1594.47	-61.06	-88.48	-86.22	-88.78	-86.50	0.30	0.0
104	34	52.20	114	26.30	1053.0	0	1577.71	-57.78	-93.70	-90.74	-94.09	-91.10	0.39	0.0
105	34	54.00	114	25.50	1284.0	0	1564.71	-51.60	-95.39	-91.78	-95.66	-92.03	0.48	0.20
106	34	56.10	114	25.20	1495.0	0	1555.93	-43.49	-94.48	-90.28	-94.55	-90.34	0.55	0.48
107	34	57.70	114	24.50	1788.0	0	1542.70	-31.42	-92.41	-87.38	-92.15	-87.15	0.65	0.91
108	34	59.10	114	25.60	1949.0	0	1536.08	-24.88	-91.35	-85.87	-91.38	-85.90	0.71	0.68
109	34	50.80	114	25.50	1010.0	0	1575.47	-62.09	-96.54	-93.70	-96.92	-94.05	0.34	0.0
110	34	49.40	114	25.20	1034.0	0	1570.46	-62.88	-98.14	-95.24	-98.53	-95.59	0.38	0.0
111	34	47.80	114	24.60	902.0	0	1579.11	-64.39	-95.15	-92.62	-95.49	-92.93	0.34	0.0
112	34	46.20	114	23.80	942.0	0	1580.06	-57.42	-89.55	-86.90	-89.90	-87.23	0.35	0.0
113	34	44.50	114	22.60	763.0	0	1601.76	-50.17	-76.19	-74.05	-76.48	-74.31	0.29	0.0
114	34	47.00	114	21.20	1099.0	0	1571.21	-52.63	-90.12	-87.03	-90.53	-87.40	0.41	0.0
115	34	48.50	114	19.40	1322.0	0	1557.07	-47.91	-93.00	-89.29	-93.49	-89.74	0.49	0.0
116	34	49.90	114	20.00	1519.0	0	1545.11	-43.31	-95.12	-90.45	-95.68	-91.37	0.56	0.0
117	34	51.70	114	19.50	1800.0	0	1531.97	-32.56	-93.96	-88.90	-94.49	-89.39	0.66	0.12
118	34	53.50	114	19.10	2104.0	0	1502.46	-36.02	-107.78	-101.87	-107.92	-101.99	0.76	0.63
119	34	44.40	114	16.00	1101.0	0	1570.86	-49.14	-86.69	-83.59	-87.10	-83.97	0.41	0.0
120	34	46.70	114	16.40	1367.0	0	1553.81	-44.40	-91.03	-87.19	-91.53	-87.65	0.51	0.0
121	34	48.00	114	15.90	1590.0	0	1546.83	-32.24	-86.47	-82.00	-87.06	-82.54	0.59	0.0
122	34	42.36	114	13.69	1402.0	0	1551.70	-37.12	-84.93	-80.99	-85.45	-81.47	0.52	0.0
123	34	40.60	114	11.60	1618.0	0	1533.08	-32.95	-88.13	-83.58	-88.73	-84.13	0.60	0.0
124	34	39.75	114	10.56	1746.0	0	1528.43	-24.37	-83.92	-79.01	-84.56	-79.60	0.64	0.0
125	34	43.69	114	12.40	1375.0	0	1540.96	-52.27	-99.16	-95.30	-99.67	-95.77	0.51	0.0
126	34	44.58	114	10.22	1481.0	0	1528.48	-56.03	-106.54	-102.38	-107.09	-102.88	0.55	0.0
127	34	43.22	114	14.79	1266.0	0	1559.31	-43.51	-86.69	-83.13	-87.16	-83.56	0.47	0.0
128	34	45.00	114	13.50	1208.0	0	1551.13	-59.65	-100.85	-97.45	-101.30	-97.86	0.45	0.0
129	34	46.20	114	11.60	1374.0	0	1532.48	-64.37	-111.23	-107.37	-111.74	-107.84	0.51	0.0
130	34	47.70	114	9.70	1546.0	0	1524.58	-58.21	-110.94	-106.59	-111.51	-107.11	0.57	0.0
131	34	51.08	114	35.78	472.0	0	1618.34	-70.22	-86.32	-85.00	-86.50	-85.16	0.18	0.0
132	34	51.95	114	35.78	473.0	0	1614.65	-75.05	-91.18	-89.85	-91.35	-90.01	0.18	0.0
133	34	52.81	114	35.80	467.0	0	1612.15	-79.32	-95.25	-93.94	-95.42	-94.10	0.18	0.0
134	34	53.70	114	35.80	469.0	0	1611.53	-81.01	-97.00	-95.69	-97.18	-95.85	0.18	0.0
135	34	54.56	114	35.80	468.0	0	1610.83	-83.02	-98.98	-97.66	-99.15	-97.82	0.18	0.0
136	35	0.69	114	35.80	548.0	0	1619.17	-75.80	-94.49	-92.95	-94.70	-93.14	0.21	0.0
137	34	58.97	114	35.80	531.0	0	1619.29	-74.85	-92.96	-91.47	-93.16	-91.65	0.20	0.0
138	34	57.20	114	35.80	476.0	0	1617.12	-79.70	-95.93	-94.59	-96.11	-94.76	0.18	0.0
139	34	53.70	114	34.75	459.0	0	1611.57	-81.91	-97.56	-96.27	-97.74	-96.43	0.17	0.0
140	34	53.70	114	32.78	456.0	0	1612.71	-81.05	-96.60	-95.32	-96.77	-95.48	0.17	0.0
141	34	58.08	114	34.75	490.0	0	1620.50	-76.24	-92.95	-91.58	-93.14	-91.74	0.18	0.0
142	34	58.08	114	33.69	616.0	0	1613.57	-71.32	-92.33	-90.60	-92.56	-90.81	0.23	0.0
143	34	58.49	114	32.11	811.0	0	1601.84	-65.29	-92.95	-90.67	-93.25	-90.95	0.30	0.0
144	35	1.56	114	35.80	565.0	0	1617.69	-76.91	-96.18	-94.59	-96.39	-94.79	0.21	0.0
145	35	2.42	114	35.82	596.0	0	1615.47	-77.43	-97.76	-96.08	-97.98	-96.29	0.22	0.0
146	35	2.63	114	37.28	540.0	0	1623.54	-74.92	-93.34	-91.82	-93.54	-92.01	0.20	0.0
147	35	5.05	114	35.82	552.0	0	1623.56	-77.19	-96.02	-94.47	-96.22	-94.66	0.21	0.0
148	35	6.48	114	37.78	519.0	0	1634.12	-67.76	-85.46	-84.00	-85.37	-83.92	0.19	0.28
149	35	6.48	114	36.18	579.0	0	1628.06	-72.17	-91.92	-90.29	-92.14	-90.49	0.22	0.0
150	35	5.91	114	33.69	895.0	0	1597.26	-72.45	-102.97	-100.46	-103.30	-100.76	0.33	0.0
151	35	5.90	114	31.58	1256.0	0	1570.47	-65.27	-108.10	-104.58	-108.57	-105.00	0.47	0.0
152	35	5.46	114	30.04	1490.0	0	1554.94	-58.17	-108.99	-104.80	-109.33	-105.11	0.55	0.21
153	35	7.66	114	34.47	528.0	0	1631.26	-75.44	-93.45	-91.96	-93.65	-92.14	0.20	0.0
154	35	9.66	114	32.84	800.0	0	1611.45	-72.49	-99.78	-97.53	-100.08	-97.80	0.30	0.0

155	35	11.40	114	32.10	968.0	0	1610.53	-60.07	-93.09	-90.37	-92.82	-90.12	0.36	0.63
156	35	11.20	114	30.14	1469.0	0	1572.32	-50.88	-100.98	-96.85	-100.82	-96.71	0.54	0.70
157	34	51.93	114	34.75	467.0	0	1613.72	-76.51	-92.44	-91.13	-92.61	-91.29	0.18	0.0
158	34	51.95	114	33.68	461.0	0	1613.56	-77.26	-92.99	-91.69	-93.16	-91.85	0.17	0.0
159	34	51.95	114	32.40	458.0	0	1613.87	-77.24	-92.86	-91.57	-93.03	-91.73	0.17	0.0
160	34	50.22	114	30.51	508.0	0	1612.67	-71.30	-88.62	-87.20	-88.81	-87.37	0.19	0.0
161	34	47.60	114	29.70	623.0	0	1611.36	-58.10	-79.35	-77.60	-79.58	-77.81	0.23	0.0
162	34	54.20	114	27.10	1058.0	0	1582.14	-55.70	-91.79	-88.81	-92.18	-89.18	0.39	0.0
163	34	55.40	114	27.60	1123.0	0	1581.42	-52.28	-90.58	-87.43	-91.00	-87.81	0.42	0.0
164	34	57.30	114	28.10	1285.0	0	1571.21	-49.65	-93.48	-89.87	-93.83	-90.19	0.48	0.13
165	35	0.55	114	23.44	2388.0	0	1504.68	-17.04	-98.49	-91.78	-98.26	-91.57	0.86	1.08
166	35	1.95	114	23.39	2758.0	0	1477.75	-11.16	-105.22	-97.47	-105.28	-97.52	0.98	0.92
167	35	2.88	114	23.69	2567.0	0	1488.25	-19.93	-107.48	-100.27	-107.67	-100.44	0.92	0.73
168	35	4.16	114	25.12	2230.0	0	1508.14	-33.54	-109.60	-103.33	-109.67	-103.40	0.81	0.73
169	35	4.78	114	26.16	2025.0	0	1522.22	-39.61	-108.68	-102.99	-108.81	-103.11	0.74	0.60
170	35	5.00	114	27.15	1947.0	0	1528.74	-40.74	-107.15	-101.67	-107.31	-101.82	0.71	0.55
171	35	5.09	114	28.26	1792.0	0	1539.69	-44.49	-105.61	-100.58	-105.71	-100.66	0.66	0.56
172	35	5.27	114	29.09	1711.0	0	1542.63	-49.43	-107.78	-102.97	-107.94	-103.12	0.63	0.47
173	34	45.90	114	28.50	699.0	0	1607.07	-52.85	-76.69	-74.72	-76.95	-74.96	0.26	0.0
174	34	44.13	114	28.32	546.0	0	1629.59	-42.23	-60.85	-59.32	-61.05	-59.50	0.20	0.0
175	34	58.10	114	26.70	1637.0	0	1546.50	-42.39	-98.22	-93.62	-98.48	-93.86	0.60	0.34
176	34	56.20	114	29.90	966.0	0	1591.68	-57.64	-90.58	-87.87	-90.94	-88.20	0.36	0.0
177	34	55.50	114	31.51	798.0	0	1599.08	-65.05	-92.27	-90.03	-92.57	-90.30	0.30	0.0
178	34	54.50	114	32.64	525.0	0	1610.95	-77.45	-95.36	-93.88	-95.55	-94.06	0.20	0.0
179	34	57.80	114	28.30	1360.0	0	1567.65	-46.87	-93.25	-89.43	-93.75	-89.89	0.50	0.0
180	34	59.10	114	28.90	1358.0	0	1569.89	-46.65	-92.97	-89.15	-93.47	-89.61	0.50	0.0
181	34	58.74	114	30.76	1034.0	0	1591.24	-55.26	-90.53	-87.63	-90.92	-87.98	0.38	0.0
182	35	0.69	114	29.53	1325.0	0	1570.29	-51.60	-96.79	-93.07	-97.28	-93.52	0.49	0.0
183	35	3.31	114	30.52	1312.0	0	1569.04	-57.77	-102.52	-98.83	-103.00	-99.28	0.49	0.0
184	34	55.43	114	36.89	461.0	0	1611.63	-84.10	-99.82	-98.53	-100.00	-98.69	0.17	0.0
185	34	55.43	114	37.85	471.0	0	1611.52	-83.27	-99.33	-98.01	-99.51	-98.17	0.18	0.0
186	35	11.20	114	35.17	748.0	0	1629.79	-61.22	-86.73	-84.63	-86.43	-84.36	0.28	0.58
187	35	11.19	114	37.22	1177.0	0	1607.62	-43.03	-83.17	-79.87	-82.93	-79.64	0.44	0.68
188	35	11.80	114	40.97	2284.0	0	1542.08	-5.32	-83.22	-76.80	-82.80	-76.41	0.82	1.25
189	35	10.30	114	43.09	2415.0	0	1528.59	-4.37	-86.74	-79.95	-86.85	-80.05	0.87	0.76
190	35	10.32	114	45.04	2783.0	0	1498.36	-0.03	-94.95	-87.13	-95.62	-87.74	0.98	0.31
191	35	10.42	114	44.28	2669.0	0	1498.69	-10.56	-101.59	-94.09	-102.08	-94.54	0.95	0.46
192	35	9.05	114	43.15	2591.0	0	1518.52	3.88	-84.49	-77.21	-84.60	-77.31	0.92	0.82
193	35	7.62	114	42.30	1973.0	0	1558.65	-12.09	-79.38	-73.84	-79.12	-73.60	0.72	0.98
194	34	54.20	114	40.23	804.0	0	1602.89	-58.84	-86.26	-84.00	-86.56	-84.28	0.30	0.0
195	34	58.77	114	43.10	1088.0	0	1612.97	-28.50	-65.61	-62.55	-65.09	-62.08	0.40	0.92
196	34	57.88	114	41.70	752.0	0	1618.47	-53.34	-78.99	-76.88	-79.06	-76.94	0.28	0.21
197	35	7.59	114	38.08	525.0	0	1647.21	-59.67	-77.58	-76.10	-76.52	-75.13	0.20	1.26
198	35	8.75	114	37.08	826.0	0	1623.46	-56.75	-84.92	-82.60	-84.87	-82.56	0.31	0.36
199	35	10.10	114	35.90	815.0	0	1620.71	-62.44	-90.24	-87.95	-90.55	-88.23	0.30	0.0
200	35	9.99	114	34.30	523.0	0	1636.21	-74.25	-92.09	-90.62	-92.02	-90.55	0.20	0.27
201	35	11.69	114	33.37	769.0	0	1627.99	-61.74	-87.97	-85.81	-87.61	-85.48	0.29	0.65
202	35	11.14	114	20.61	1811.0	0	1538.24	-52.71	-114.48	-109.39	-114.45	-109.36	0.66	0.69
203	35	11.15	114	27.40	2115.0	0	1523.74	-38.64	-110.77	-104.83	-110.54	-104.61	0.77	1.00
204	35	11.20	114	26.45	2345.0	0	1513.56	-27.26	-107.24	-100.65	-107.00	-100.43	0.84	1.08
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205	34	50.44	114	36.33	484.0	0	1623.25	-63.28	-79.79	-78.43	-79.97	-78.60	0.18	0.0
205	34	47.52	114	33.40	462.0	0	1629.24	-55.25	-71.01	-69.71	-71.18	-69.87	0.17	0.0
206	34	50.61	114	33.67	462.0	0	1616.18	-72.66	-88.42	-87.12	-88.59	-87.28	0.17	0.0